

AMENDMENTS TO THE CLAIMS

Please replace all prior versions, and listings, of claims in the application with the following complete list of claims:

- 1-156. (Cancelled).
157. (Currently Amended) A system as in claim ~~156~~ 174, further comprising means for controlling the temperature of the chamber to maintain a temperature suitable for cultivating cells to generate the protein resulting from interaction of the cells with oxygen and/or nutrients and/or other components.
158. (Currently Amended) A system as in claim ~~156~~ 174, the chamber having a volume of less than about 100 microliters.
159. (Previously Presented) A system as in claim 158, the chamber having a volume of less than about 10 microliters.
160. (Previously Presented) A system as in claim 159, the chamber having a volume of less than about 1 microliter.
161. (Currently Amended) A system as in claim ~~156~~ 174, further comprising a mixing unit fluidly connectable to the inlet of the chamber, the mixing unit including an outlet connectable to the inlet of the reaction chamber, a plurality of inlets each in fluid communication with the outlet and a mixing chamber between plurality of inlets and of the outlet.
162. (Previously Presented) A system as in claim 161, wherein the mixing unit chamber is free of active mixing elements.

163. (Currently Amended) A system as in claim ~~156~~ 174, further comprising a heating unit having an inlet, and an outlet connectable to the inlet of the chamber, the heating unit separable from and attachable to the chamber.
164. (Currently Amended) A system as in claim ~~156~~ 174, the reactor further comprising sensors each of temperature, pH, and oxygen concentration.
165. (Currently Amended) A system as in claim ~~156~~ 174, the reactor further comprising a temperature sensor.
166. (Currently Amended) A system as in claim ~~156~~ 174, the reactor further comprising a pH sensor.
167. (Currently Amended) A system as in claim ~~156~~ 174, the reactor further comprising an oxygen sensor.
168. (Currently Amended) A system as in claim ~~156~~ 174, wherein the plurality of reaction units are attachable to and separable from each other, constructed and arranged to operate in parallel.
169. (Currently Amended) A reactor as in claim ~~156~~ 174, comprising at least 10 reaction units constructed to operate in parallel.
170. (Previously Presented) A reactor as in claim 169, comprising at least 100 reaction chambers constructed to operate in parallel.
171. (Previously Presented) A reactor as in claim 170, comprising at least 500 reaction chambers constructed to operate in parallel.

172. (Previously Presented) A reactor as in claim 171, comprising at least 1,000 reaction chambers constructed to operate in parallel.
173. (Previously Presented) A reactor as in claim 172, comprising at least 10,000 reaction chambers constructed to operate in parallel.
174. (Currently Amended) A system for maintaining and cultivating cells in culture and obtaining a protein resulting from interaction of the cells with oxygen and/or nutrients and/or other components, comprising:
- a small-scale chemical or biochemical reactor comprising a plastic substrate comprising a plurality of reaction units constructed to operate in parallel, each reaction unit comprising an inlet, an outlet, and a fluid pathway connecting the inlet and the outlet, the fluid pathway comprising a chamber having a surface suitable for cell growth and a volume of less than about 1 ml, the chamber being constructed and arranged to maintain and cultivate cells in culture ~~for at least a period of time sufficient to generate a protein resulting from interaction of the cells with oxygen and/or nutrients and/or other components~~, the chamber further comprising an inlet fluidly connectable to a source of nutrients for the cells having a controlled pH, and an outlet for release of the protein resulting from the interaction involving the cells in the chamber;
 - a membrane defining at least one wall of the fluid pathway; and
 - an enclosure positioned proximate the membrane, wherein at least one product of the interaction involving cells in the chamber passes across the membrane into the enclosure.
175. (Cancelled)